

RAW SEQUENCE LISTING

**The Biotechnology Systems Branch of the Scientific and Technical
Information Center (STIC) no errors detected.**

Application Serial Number: 10/657,022A
Source: TFW0
Date Processed by STIC: 08/02/2006

ENTERED



IFWO

RAW SEQUENCE LISTING

DATE: 08/02/2006

PATENT APPLICATION: US/10/657,022A

TIME: 15:12:37

Input Set : A:\MANNK.032A.TXT

Output Set: N:\CRF4\08022006\J657022A.raw

4 <110> APPLICANT: Simard, John J. L.
 5 Diamond, David C.
 6 Liu, Liping
 7 Liu, Zheng
 9 <120> TITLE OF INVENTION: EPITOPE SEQUENCES
 12 <130> FILE REFERENCE: MANNK.032A
 14 <140> CURRENT APPLICATION NUMBER: 10/657,022A
 C--> 15 <141> CURRENT FILING DATE: 2003-09-05
 17 <150> PRIOR APPLICATION NUMBER: 60/409,123
 18 <151> PRIOR FILING DATE: 2002-09-06
 20 <160> NUMBER OF SEQ ID NOS: 690
 22 <170> SOFTWARE: FastSEQ for Windows Version 4.0
 24 <210> SEQ ID NO: 1
 25 <211> LENGTH: 10
 26 <212> TYPE: PRT
 27 <213> ORGANISM: Homo sapiens
 29 <400> SEQUENCE: 1
 30 Phe Leu Pro Trp His Arg Leu Phe Leu Leu
 31 1 5 10
 34 <210> SEQ ID NO: 2
 35 <211> LENGTH: 529
 36 <212> TYPE: PRT
 37 <213> ORGANISM: Homo sapiens
 39 <400> SEQUENCE: 2
 40 Met Leu Leu Ala Val Leu Tyr Cys Leu Leu Trp Ser Phe Gln Thr Ser
 41 1 5 10 15
 42 Ala Gly His Phe Pro Arg Ala Cys Val Ser Ser Lys Asn Leu Met Glu
 43 20 25 30
 44 Lys Glu Cys Cys Pro Pro Trp Ser Gly Asp Arg Ser Pro Cys Gly Gln
 45 35 40 45
 46 Leu Ser Gly Arg Gly Ser Cys Gln Asn Ile Leu Leu Ser Asn Ala Pro
 47 50 55 60
 48 Leu Gly Pro Gln Phe Pro Phe Thr Gly Val Asp Asp Arg Glu Ser Trp
 49 65 70 75 80
 50 Pro Ser Val Phe Tyr Asn Arg Thr Cys Gln Cys Ser Gly Asn Phe Met
 51 85 90 95
 52 Gly Phe Asn Cys Gly Asn Cys Lys Phe Gly Phe Trp Gly Pro Asn Cys
 53 100 105 110
 54 Thr Glu Arg Arg Leu Leu Val Arg Arg Asn Ile Phe Asp Leu Ser Ala
 55 115 120 125
 56 Pro Glu Lys Asp Lys Phe Phe Ala Tyr Leu Thr Leu Ala Lys His Thr
 57 130 135 140
 58 Ile Ser Ser Asp Tyr Val Ile Pro Ile Gly Thr Tyr Gly Gln Met Lys

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59 145          150          155          160
60 Asn Gly Ser Thr Pro Met Phe Asn Asp Ile Asn Ile Tyr Asp Leu Phe
61          165          170          175
62 Val Trp Met His Tyr Tyr Val Ser Met Asp Ala Leu Leu Gly Gly Ser
63          180          185          190
64 Glu Ile Trp Arg Asp Ile Asp Phe Ala His Glu Ala Pro Ala Phe Leu
65          195          200          205
66 Pro Trp His Arg Leu Phe Leu Leu Arg Trp Glu Gln Glu Ile Gln Lys
67          210          215          220
68 Leu Thr Gly Asp Glu Asn Phe Thr Ile Pro Tyr Trp Asp Trp Arg Asp
69 225          230          235          240
70 Ala Glu Lys Cys Asp Ile Cys Thr Asp Glu Tyr Met Gly Gly Gln His
71          245          250          255
72 Pro Thr Asn Pro Asn Leu Leu Ser Pro Ala Ser Phe Phe Ser Ser Trp
73          260          265          270
74 Gln Ile Val Cys Ser Arg Leu Glu Glu Tyr Asn Ser His Gln Ser Leu
75          275          280          285
76 Cys Asn Gly Thr Pro Glu Gly Pro Leu Arg Arg Asn Pro Gly Asn His
77          290          295          300
78 Asp Lys Ser Arg Thr Pro Arg Leu Pro Ser Ser Ala Asp Val Glu Phe
79 305          310          315          320
80 Cys Leu Ser Leu Thr Gln Tyr Glu Ser Gly Ser Met Asp Lys Ala Ala
81          325          330          335
82 Asn Phe Ser Phe Arg Asn Thr Leu Glu Gly Phe Ala Ser Pro Leu Thr
83          340          345          350
84 Gly Ile Ala Asp Ala Ser Gln Ser Ser Met His Asn Ala Leu His Ile
85          355          360          365
86 Tyr Met Asn Gly Thr Met Ser Gln Val Gln Gly Ser Ala Asn Asp Pro
87          370          375          380
88 Ile Phe Leu Leu His His Ala Phe Val Asp Ser Ile Phe Glu Gln Trp
89 385          390          395          400
90 Leu Arg Arg His Arg Pro Leu Gln Glu Val Tyr Pro Glu Ala Asn Ala
91          405          410          415
92 Pro Ile Gly His Asn Arg Glu Ser Tyr Met Val Pro Phe Ile Pro Leu
93          420          425          430
94 Tyr Arg Asn Gly Asp Phe Phe Ile Ser Ser Lys Asp Leu Gly Tyr Asp
95          435          440          445
96 Tyr Ser Tyr Leu Gln Asp Ser Asp Pro Asp Ser Phe Gln Asp Tyr Ile
97          450          455          460
98 Lys Ser Tyr Leu Glu Gln Ala Ser Arg Ile Trp Ser Trp Leu Leu Gly
99 465          470          475          480
100 Ala Ala Met Val Gly Ala Val Leu Thr Ala Leu Leu Ala Gly Leu Val
101          485          490          495
102 Ser Leu Leu Cys Arg His Lys Arg Lys Gln Leu Pro Glu Glu Lys Gln
103          500          505          510
104 Pro Leu Leu Met Glu Lys Glu Asp Tyr His Ser Leu Tyr Gln Ser His
105          515          520          525
106 Leu
110 <210> SEQ ID NO: 3

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111 <211> LENGTH: 188
112 <212> TYPE: PRT
113 <213> ORGANISM: Homo sapiens
115 <400> SEQUENCE: 3
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118 Ile Pro Glu Lys Ile Gln Lys Ala Phe Asp Asp Ile Ala Lys Tyr Phe
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120 Ser Lys Glu Glu Trp Glu Lys Met Lys Ala Ser Glu Lys Ile Phe Tyr
121 35 40 45
122 Val Tyr Met Lys Arg Lys Tyr Glu Ala Met Thr Lys Leu Gly Phe Lys
123 50 55 60
124 Ala Thr Leu Pro Pro Phe Met Cys Asn Lys Arg Ala Glu Asp Phe Gln
125 65 70 75 80
126 Gly Asn Asp Leu Asp Asn Asp Pro Asn Arg Gly Asn Gln Val Glu Arg
127 85 90 95
128 Pro Gln Met Thr Phe Gly Arg Leu Gln Gly Ile Ser Pro Lys Ile Met
129 100 105 110
130 Pro Lys Lys Pro Ala Glu Glu Gly Asn Asp Ser Glu Glu Val Pro Glu
131 115 120 125
132 Ala Ser Gly Pro Gln Asn Asp Gly Lys Glu Leu Cys Pro Pro Gly Lys
133 130 135 140
134 Pro Thr Thr Ser Glu Lys Ile His Glu Arg Ser Gly Pro Lys Arg Gly
135 145 150 155 160
136 Glu His Ala Trp Thr His Arg Leu Arg Glu Arg Lys Gln Leu Val Ile
137 165 170 175
138 Tyr Glu Glu Ile Ser Asp Pro Glu Glu Asp Asp Glu
139 180 185
142 <210> SEQ ID NO: 4
143 <211> LENGTH: 750
144 <212> TYPE: PRT
145 <213> ORGANISM: Homo sapiens
147 <400> SEQUENCE: 4
148 Met Trp Asn Leu Leu His Glu Thr Asp Ser Ala Val Ala Thr Ala Arg
149 1 5 10 15
150 Arg Pro Arg Trp Leu Cys Ala Gly Ala Leu Val Leu Ala Gly Gly Phe
151 20 25 30
152 Phe Leu Leu Gly Phe Leu Phe Gly Trp Phe Ile Lys Ser Ser Asn Glu
153 35 40 45
154 Ala Thr Asn Ile Thr Pro Lys His Asn Met Lys Ala Phe Leu Asp Glu
155 50 55 60
156 Leu Lys Ala Glu Asn Ile Lys Lys Phe Leu Tyr Asn Phe Thr Gln Ile
157 65 70 75 80
158 Pro His Leu Ala Gly Thr Glu Gln Asn Phe Gln Leu Ala Lys Gln Ile
159 85 90 95
160 Gln Ser Gln Trp Lys Glu Phe Gly Leu Asp Ser Val Glu Leu Ala His
161 100 105 110
162 Tyr Asp Val Leu Leu Ser Tyr Pro Asn Lys Thr His Pro Asn Tyr Ile
163 115 120 125

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164 Ser Ile Ile Asn Glu Asp Gly Asn Glu Ile Phe Asn Thr Ser Leu Phe
165      130      135      140
166 Glu Pro Pro Pro Pro Gly Tyr Glu Asn Val Ser Asp Ile Val Pro Pro
167 145      150      155      160
168 Phe Ser Ala Phe Ser Pro Gln Gly Met Pro Glu Gly Asp Leu Val Tyr
169      165      170      175
170 Val Asn Tyr Ala Arg Thr Glu Asp Phe Phe Lys Leu Glu Arg Asp Met
171      180      185      190
172 Lys Ile Asn Cys Ser Gly Lys Ile Val Ile Ala Arg Tyr Gly Lys Val
173      195      200      205
174 Phe Arg Gly Asn Lys Val Lys Asn Ala Gln Leu Ala Gly Ala Lys Gly
175      210      215      220
176 Val Ile Leu Tyr Ser Asp Pro Ala Asp Tyr Phe Ala Pro Gly Val Lys
177 225      230      235      240
178 Ser Tyr Pro Asp Gly Trp Asn Leu Pro Gly Gly Gly Val Gln Arg Gly
179      245      250      255
180 Asn Ile Leu Asn Leu Asn Gly Ala Gly Asp Pro Leu Thr Pro Gly Tyr
181      260      265      270
182 Pro Ala Asn Glu Tyr Ala Tyr Arg Gly Ile Ala Glu Ala Val Gly
183      275      280      285
184 Leu Pro Ser Ile Pro Val His Pro Ile Gly Tyr Tyr Asp Ala Gln Lys
185      290      295      300
186 Leu Leu Glu Lys Met Gly Gly Ser Ala Pro Pro Asp Ser Ser Trp Arg
187 305      310      315      320
188 Gly Ser Leu Lys Val Pro Tyr Asn Val Gly Pro Gly Phe Thr Gly Asn
189      325      330      335
190 Phe Ser Thr Gln Lys Val Lys Met His Ile His Ser Thr Asn Glu Val
191      340      345      350
192 Thr Arg Ile Tyr Asn Val Ile Gly Thr Leu Arg Gly Ala Val Glu Pro
193      355      360      365
194 Asp Arg Tyr Val Ile Leu Gly Gly His Arg Asp Ser Trp Val Phe Gly
195      370      375      380
196 Gly Ile Asp Pro Gln Ser Gly Ala Ala Val Val His Glu Ile Val Arg
197 385      390      395      400
198 Ser Phe Gly Thr Leu Lys Lys Glu Gly Trp Arg Pro Arg Arg Thr Ile
199      405      410      415
200 Leu Phe Ala Ser Trp Asp Ala Glu Glu Phe Gly Leu Leu Gly Ser Thr
201      420      425      430
202 Glu Trp Ala Glu Glu Asn Ser Arg Leu Leu Gln Glu Arg Gly Val Ala
203      435      440      445
204 Tyr Ile Asn Ala Asp Ser Ser Ile Glu Gly Asn Tyr Thr Leu Arg Val
205      450      455      460
206 Asp Cys Thr Pro Leu Met Tyr Ser Leu Val His Asn Leu Thr Lys Glu
207 465      470      475      480
208 Leu Lys Ser Pro Asp Glu Gly Phe Glu Gly Lys Ser Leu Tyr Glu Ser
209      485      490      495
210 Trp Thr Lys Lys Ser Pro Ser Pro Glu Phe Ser Gly Met Pro Arg Ile
211      500      505      510
212 Ser Lys Leu Gly Ser Gly Asn Asp Phe Glu Val Phe Phe Gln Arg Leu

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```

213          515          520          525
214 Gly Ile Ala Ser Gly Arg Ala Arg Tyr Thr Lys Asn Trp Glu Thr Asn
215          530          535          540
216 Lys Phe Ser Gly Tyr Pro Leu Tyr His Ser Val Tyr Glu Thr Tyr Glu
217 545          550          555          560
218 Leu Val Glu Lys Phe Tyr Asp Pro Met Phe Lys Tyr His Leu Thr Val
219          565          570          575
220 Ala Gln Val Arg Gly Gly Met Val Phe Glu Leu Ala Asn Ser Ile Val
221          580          585          590
222 Leu Pro Phe Asp Cys Arg Asp Tyr Ala Val Val Leu Arg Lys Tyr Ala
223          595          600          605
224 Asp Lys Ile Tyr Ser Ile Ser Met Lys His Pro Gln Glu Met Lys Thr
225          610          615          620
226 Tyr Ser Val Ser Phe Asp Ser Leu Phe Ser Ala Val Lys Asn Phe Thr
227 625          630          635          640
228 Glu Ile Ala Ser Lys Phe Ser Glu Arg Leu Gln Asp Phe Asp Lys Ser
229          645          650          655
230 Asn Pro Ile Val Leu Arg Met Met Asn Asp Gln Leu Met Phe Leu Glu
231          660          665          670
232 Arg Ala Phe Ile Asp Pro Leu Gly Leu Pro Asp Arg Pro Phe Tyr Arg
233          675          680          685
234 His Val Ile Tyr Ala Pro Ser Ser His Asn Lys Tyr Ala Gly Glu Ser
235          690          695          700
236 Phe Pro Gly Ile Tyr Asp Ala Leu Phe Asp Ile Glu Ser Lys Val Asp
237 705          710          715          720
238 Pro Ser Lys Ala Trp Gly Glu Val Lys Arg Gln Ile Tyr Val Ala Ala
239          725          730          735
240 Phe Thr Val Gln Ala Ala Ala Glu Thr Leu Ser Glu Val Ala
241          740          745          750
244 <210> SEQ ID NO: 5
245 <211> LENGTH: 1964
246 <212> TYPE: DNA
247 <213> ORGANISM: Homo sapiens
249 <400> SEQUENCE: 5
250 atcactgtag tagtagctgg aaagagaaat ctgtgactcc aattagccag ttcctgcaga 60
251 ccttgtaggg actagaggaa gaatgctcct ggctgttttg tactgcctgc tgtggagttt 120
252 ccagacctcc gctggccatt tccctagagc ctgtgtctcc tctaagaacc tgatggagaa 180
253 ggaatgctgt ccaccgtgga gcggggacag gagtcctgt ggccagcttt caggcagagg 240
254 ttcctgtcag aatatccttc tgtccaatgc accacttggg cctcaatttc cttcacagg 300
255 ggtggatgac cgggagtcgt ggccttccgt cttttataat aggacctgcc agtgctctgg 360
256 caacttcacg ggattcaact gtggaaactg caagtttggc ttttggggac caaactgcac 420
257 agagagacga ctcttggtga gaagaaacat cttcgatttg agtgccccag agaaggacaa 480
258 attttttgcc tacctcactt tagcaaagca taccatcagc tcagactatg tcatcccat 540
259 agggacctat ggccaaatga aaaatggatc aacacccatg tttaacgaca tcaatattta 600
260 tgacctcttt gtctggatgc attattatgt gtcaatggat gcaactgctt ggggatctga 660
261 aatctggaga gacattgatt ttgcccatag agcaccagct tttctgcctt ggcatagact 720
262 cttctgtgtg cgggtgggaac aagaaatcca gaagctgaca ggagatgaaa acttcactat 780
263 tccatattgg gactggcggg atgcagaaaa gtgtgacatt tgcacagatg agtacatggg 840
264 aggtcagcac cccacaaatc ctaacttact cagcccagca tcattcttct cctcttggca 900

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RAW SEQUENCE LISTING ERROR SUMMARY DATE: 08/02/2006
PATENT APPLICATION: US/10/657,022A TIME: 15:12:38

Input Set : A:\MANNK.032A.TXT
Output Set: N:\CRF4\08022006\J657022A.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:87; N Pos. 543,580,584,604,608,615,636,640,646,697,926

VERIFICATION SUMMARY

DATE: 08/02/2006

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Input Set : A:\MANNK.032A.TXT

Output Set: N:\CRF4\08022006\J657022A.raw

L:15 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:1855 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:87 after pos.:540

M:341 Repeated in SeqNo=87